

REMARKS

Claim 1-14 are pending in the present application. Claims 15-20 have been withdrawn. No claims have been canceled, no new claims have been added, and no claims have been amended herein. Favorable reconsideration of the application and allowance of all of the pending claims are respectfully requested in view of the following remarks.

Claims 1-14 have been rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,051,849 to Davis et al. ("Davis") in view of U.S. Patent No. 5,093,576 to Edmond et al ("Edmond"). Applicants respectfully traverse this rejection.

Claim 1 of the present application calls for, *inter alia*, "forming openings in a dielectric thin film mask material disposed on a semiconductor substrate surface " and after "growing by confined epitaxy active material in the openings" the step of "removing the mask material to form the device with extended defect density and having reverse bias leakage current of less than 1×10^{-9} amps in the grown active material." The Examiner relies on Davis for showing the "removing the mask material to form the device with reduced extended defect density" feature of the claimed invention. June 6, 2006 Office Action at page 3. Davis does not teach or suggest the removal of mask material. Instead, Davis discloses growing a gallium nitride layer laterally 108b over the mask layer 106. See col. 2, lines 47-52; col. 5, lines 29-37; Figs. 4 and 5. For example, the mask layer 106 is still present in the end of the fabrication process illustrated in FIG. 5.

Further, it would not be obvious to alter the teaching of Davis to removing the mask material. Specifically, the lateral growth 108b over the mask layer 106, and thus the continued presence of the mask layer 106, is essential to Davis since it discloses forming microelectronic devices only in the lateral growth area 108b of gallium nitride that are grown over the mask layer 106. (Abstract; col. 2, lines 52-54; col. 5, lines 37-40; Figs. 4 and 5.)

Additionally, page 2, lines 7-19 of the present application clearly distinguishes the overgrowth method of Davis from the method of the present application. Thus, Davis does not

teach or suggest the removal of the resist mask layer 106, nor would it be obvious to do so as a modification of Davis based on the teachings of Davis itself.


Davis does not teach all the features of the claimed invention as suggested by the Examiner. Further, Edmond does not supplement the features missing from Davis. Specifically, Edmond does not teach the method of semiconductor manufacture by confined eptaxial growth of the claimed invention. Additionally, Edmond is not relevant to the present invention since it does not utilize materials with similar extended defect density concerns as in the present invention.

Therefore, Davis and Edmond, either alone or in combination, do not disclose the invention as claimed in claim 1. Claims 2-14 depend from and add further features to claim 1 and thus are patentable over the Examiner's cited references for at least the same reasons as claim 1. Applicants therefore respectfully request the withdrawal of this 35 U.S.C. § 103(a) rejection.

Applicants believe that the above constitutes a full and complete reply and that the stated grounds for rejection have been properly traversed, accommodated or rendered moot. In view of the above remarks, Applicants believes the pending application is in condition for allowance. Applicants respectfully request that the Examiner reconsider and promptly withdraw the outstanding objections and rejections. The Examiner is invited to contact the undersigned for any reason so as to expedite the examination of this application.

Dated: July 31, 2006

Respectfully submitted,

By 

Rae Lynn P. Guest

Registration No.: 53,482
US NAVAL RESEARCH LABORATORY
4555 Overlook Ave, SW
Washington, DC 20375
(202) 404-1555
(202) 404-7380 (Fax)
Attorney For Applicant